



# ESMX Point to Point Loop Designer

## Quick Start Guide

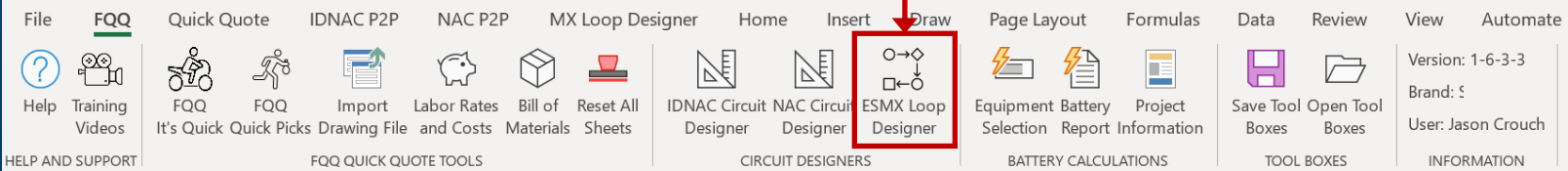
The power behind **your mission**



# Getting Started



Click ESMX Loop Designer in the Ribbon of the FQQ Home Menu.



ProjectNa... | Example Project

Welcome to the FQQ Quick Quote Tool

✓ Project Name:

! Customer Name:

! Project Location:

! Project Phase:

✓ Prepared By:

! Date:

Click Button to Clear this Form

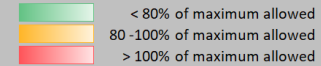
# ESMX Point to Point Loop Designer

ESMX Loop Designer Ribbon Controls

DETECTORS	PHOTO	0	PHOTO/HEAT	0	HEAT	0	PHOTO/HEAT/CO	0	DUCT	0
BASES	STANDARD	0	CONTINUITY	0	SOUNDER	0	SOUNDER BEACON	0		
CALLS/PULLS	CP INDOOR	0	CP OUTDOOR	0	SINGLE	0	BREAKGLASS	0	PUSH PULL	0
MODULES	SIGNAL IAM	0	ISOLATOR	0	MULTI IO	0	RELAY	0	MONITOR	0
MINI IAM	0	DUAL IAM	0							
LP SOUNDERS	SOUNDER	0	SDR/BEACON	0	WP SDR	0	WP SDR/BEACON	0		

Select across these 4 columns to edit devices

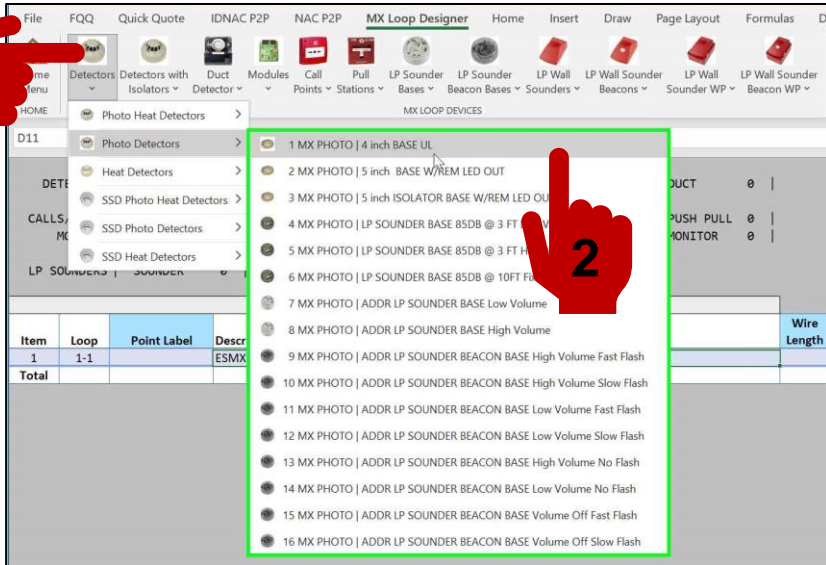
Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Left Feed		Right Feed	
																Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		14 AWG				9.25			420				40.000			
<b>Total</b>																			



ESMX Loop Designer Device Counts

ESMX Loop Designer Grid

# Adding Devices



- 1) Select Device Type
- 2) Select Model
- 3) Enter Quantity
- 4) Click OK
- 5) Devices will be added

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		14 AWG						65	410	50	0.016	0.003	40.000			
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3.250	●	9.25					0.016	0.003	39.997			
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3.250	●	9.25					0.013	0.002	39.995			
4	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	3	3.250	●	9.25					0.010	0.002	39.993			
5	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	4	3.250	●	9.25					0.007	0.001	39.992			
6	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	5	3.250	●	9.25					0.003	0.001	39.991			
<b>Total</b>																			





# Editing Devices

1

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address
1	1-1		ESMX LOOP		14 AWG	
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2
4	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	3
5	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	4
6	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	5
7	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6
8	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7
9	1-1		MX RELAY IAM	10	14 AWG	8
10	1-1		MX RELAY IAM	10	14 AWG	9
11	1-1		MX RELAY IAM	10	14 AWG	10
12	1-1		MX DUAL INPUT IAM	10	14 AWG	11
13	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12
14	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13
15	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14
Total						



3

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address
1	1-1		ESMX LOOP		14 AWG	
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2
4	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	3
5	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	4
6	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	5
7	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6
8	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7
9	1-1		MX RELAY IAM	10	14 AWG	8
10	1-1		MX RELAY IAM	10	14 AWG	9
11	1-1		MX RELAY IAM	10	14 AWG	10
12	1-1		MX DUAL INPUT IAM	10	14 AWG	11
13	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12
14	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13
15	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14
Total						

4

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Left Feed Amps	Left Feed Volt Drop	Volts at Device	Right Feed Class A Amps	Right Feed Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		14 AWG						279	389	140	0.070	0.013	40.000			
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3.250	●	9.25					0.070	0.013	39.987			
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3.250	●	9.25					0.067	0.012	39.975			
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4	12.050	●	9.25	0.25				0.063	0.262	39.713			
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15	12.050	●	9.25	0.25				0.051	0.259	39.454			
6	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17	12.050	●	9.25	0.25				0.039	0.257	39.196			
7	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG		0.300		9.25	0.25				0.027	0.255	38.941			
8	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG		0.300		9.25	0.25				0.027	0.255	38.686			
9	1-1		MX RELAY IAM	10	14 AWG		0.300		9.25					0.027	0.005	38.681			
10	1-1		MX RELAY IAM	10	14 AWG		0.300		9.25					0.026	0.005	38.677			
11	1-1		MX RELAY IAM	10	14 AWG		0.300		9.25					0.026	0.005	38.672			
12	1-1		MX DUAL INPUT IAM	10	14 AWG		0.300		9.25					0.026	0.005	38.667			
13	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG		0.300		9.25	0.25				0.025	0.255	38.412			
14	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG		0.300		9.25	0.25				0.017	0.253	38.159			
15	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14	8.475		9.25	0.25				0.008	0.252	37.908			
Total																			

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- 1) Select Devices to Edit. Must Select Columns A-D
- 2) Select Device
- 3) Select Model
- 4) Click Yes to Edit
- 5) Devices Changed
- 6) Address Updated as required



# Adding a Loop Return

1) Select Loop End  
 2) Click Loop Return  
 3) Enter Loop Return Wire Length. FQQ will auto calculate a default value based on the left feed wire length  
 4) Click OK  
 5) Loop Return Added  
 6) Right Feed Calculations are now shown

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address
13	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12
14	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13
15	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14
<b>Total</b>						

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		14 AWG				9.25		279	375	280	0.070		40.000			
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3.250	●	9.25					0.070	0.013	39.987	0.003	0.001	37.731
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3.250	●	9.25					0.067	0.012	39.975	0.007	0.001	37.731
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4	12.050	●	9.25	0.25				0.063	0.262	39.713	0.019	0.253	37.732
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15	12.050	●	9.25	0.25				0.051	0.259	39.454	0.031	0.256	37.986
6	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17	12.050	●	9.25	0.25				0.039	0.257	39.196	0.043	0.258	38.242
7	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6	0.300		9.25	0.25				0.027	0.255	38.941	0.043	0.258	38.499
8	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7	0.300		9.25	0.25				0.027	0.255	38.686	0.043	0.258	38.757
9	1-1		MX RELAY IAM	10	14 AWG	8	0.300		9.25					0.027	0.255	38.681	0.044	0.008	39.015
10	1-1		MX RELAY IAM	10	14 AWG	9	0.300		9.25					0.026	0.255	38.677	0.044	0.008	39.023
11	1-1		MX RELAY IAM	10	14 AWG	10	0.300		9.25					0.026	0.255	38.672	0.044	0.008	39.032
12	1-1		MX DUAL INPUT IAM	10	14 AWG	11	0.250		9.25					0.026	0.005	38.667	0.044	0.008	39.040
13	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12	8.475		9.25	0.25				0.025	0.255	38.412	0.053	0.260	39.048
14	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13	8.475		9.25	0.25				0.017	0.253	38.159	0.061	0.261	39.308
15	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14	8.475		9.25	0.25				0.008	0.252	37.908	0.070	0.431	39.569
16	1-1		MX LOOP RETURN	140	14 AWG				9.25										40.000
<b>Total</b>																			

# Adding a T-TAP / SPUR

File FQQ Quick Quote IDNAC P2P NAC P2P **MX Loop Designer** Home Insert Draw Page Layout Formulas Data Review View Automate Developer Help Table Design

Home Menu Detectors Detectors with Isolators Duct Detector Modules Call Points Pull LP Sounder LP Sounder LP Wall LP Wall Sounder LP Wall Sounder WP LP Wall Sounder Beacon WP

Wire Length: 10 Unit of Measure: Meters Wire Gauge: 14 AWG LED's on Concurrently: 5 Wire Temperature: 50°C (122°F) MICC High Capacitance Cable: Yes

ADD HARDWARE: New Loop, Add 2nd Loop to Card, Loop Return, Branch Tap, End Tap

CONTROLS AND...: Copy Selection, Copy Loop, Readdress Loop, Delete Selection

HOME MX LOOP DEVICES MX LOOP DESIGNER SETTINGS

D15

DETECTORS	PHOTO	2	PHOTO/HEAT	0	HEAT	3	PHOTO/HEAT/CO	0	DUCT	0
BASES	STANDARD	2	CONTINUITY	0	SOUNDER	0	SOUNDER BEACON	3		
CALLS/PULLS	CP INDOOR	2	CP OUTDOOR	0	SINGLE	0	BREAKGLASS	0	PUSH PULL	0
MODULES	SIGNAL IAM	0	ISOLATOR	0	MULTI IO	0	RELAY	3	MONITOR	0
LP SOUNDERS	MINI IAM	0	DUAL IAM	1						
	SOUNDER	3	SDR/BEACON	0	WP SDR	0	WP SDR/BEACON	0		

Select across these 4 columns to edit devices

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		14 AWG				9.25		279	389	140	0.070		40.000			
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3.250	●	9.25					0.070	0.013	39.987			
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3.250	●	9.25					0.067	0.012	39.975			
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4	12.050	●	9.25	0.25				0.063	0.262	39.713			
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15	12.050	●	9.25	0.25				0.051	0.259	39.454			
6	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17	12.050	●	9.25	0.25				0.039	0.257	39.196			
7	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6	0.300		9.25	0.25				0.027	0.255	38.941			
8	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7	0.300		9.25	0.25				0.027	0.255	38.686			
9	1-1		MX RELAY IAM	10	14 AWG	8	0.300		9.25					0.027	0.005	38.681			

Select across these 4 columns to edit devices

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address
1	1-1		ESMX LOOP		14 AWG	
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15
6	1-1		T-TAP/SPUR		14 AWG	
7	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17
8	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6
9	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7
10	1-1		MX RELAY IAM	10	14 AWG	8
11	1-1		MX RELAY IAM	10	14 AWG	9
12	1-1		MX RELAY IAM	10	14 AWG	10
13	1-1		MX DUAL INPUT IAM	10	14 AWG	11
14	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12
15	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13
16	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14

Legend: < 80% of maximum allowed (Green), 80 - 100% of maximum allowed (Yellow), > 100% of maximum allowed (Red)

1) Select a device as an insertion point

2) Select Tap

3) T-TAP / SPUR inserted

4) Note: Devices on T-TAP / SPUR are inserted



# Adding Devices to a T-TAP / SPUR

Item	Loop	Point Label	Description and Setting	Wire Length
1	1-1		ESMX LOOP	
2	1-1		MX PHOTO   4 inch BASE UL	10
3	1-1		MX PHOTO   4 inch BASE UL	10
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10
6	1-1		T-TAP/SPUR	
7	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10
8	1-1		INDOOR UL CP W ISOLATOR MX	10
9	1-1		INDOOR UL CP W ISOLATOR MX	10
10	1-1		MX RELAY IAM	10
11	1-1		MX RELAY IAM	10
12	1-1		MX RELAY IAM	10
13	1-1		MX DUAL INPUT IAM	10
14	1-1		ADDR WALL SOUNDER RED   High Volume	10
15	1-1		ADDR WALL SOUNDER RED   High Volume	10
16	1-1		ADDR WALL SOUNDER RED   High Volume	10
17	1-1		MX LOOP RETURN	40
<b>Total</b>				

Item	Loop	Point Label	Description and Setting	Wire Length
1	1-1		ESMX LOOP	
2	1-1		MX PHOTO   4 inch BASE UL	10
3	1-1		MX PHOTO   4 inch BASE UL	10
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10
6	1-1		T-TAP/SPUR	
7	1-1		MX PULL STATION DOUBLE ACTION	10
8	1-1		MX PULL STATION DOUBLE ACTION	10
9	1-1		MX PULL STATION DOUBLE ACTION	10
10	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10
11	1-1		INDOOR UL CP W ISOLATOR MX	10
12	1-1		INDOOR UL CP W ISOLATOR MX	10
13	1-1		MX RELAY IAM	10
14	1-1		MX RELAY IAM	10
15	1-1		MX RELAY IAM	10
16	1-1		MX DUAL INPUT IAM	10
17	1-1		ADDR WALL SOUNDER RED   High Volume	10
18	1-1		ADDR WALL SOUNDER RED   High Volume	10
19	1-1		ADDR WALL SOUNDER RED   High Volume	10
20	1-1		MX LOOP RETURN	40
<b>Total</b>				

- 1) Select T-TAP / SPUR
- 2) Select Device
- 3) Enter Model
- 4) Enter Quantity
- 5) Click OK
- 6) Devices will be added



# Ending a T-TAP / SPUR

File FQQ Quick Quote IDNAC P2P NAC P2P **MX Loop Designer** Home Insert Draw Page Layout Formulas Data Review View Automate Developer Help Table Design

HOME DETECTORS DETECTORS WITH ISOLATORS DUCT MODULES CALL PULL LP SOUNDER LP SOUNDER LP WALL LP WALL SOUNDER LP WALL SOUNDER LP WALL SOUNDER BEACON WP BEACON WP

HOME MENU DETECTORS DETECTORS WITH ISOLATORS DUCT MODULES CALL PULL LP SOUNDER LP SOUNDER LP WALL LP WALL SOUNDER LP WALL SOUNDER BEACON WP BEACON WP

HOME MX LOOP DESIGNER SETTINGS

Wire Length: 10 Unit of Measure: Meters  
 Wire Gauge: 14 AWG LED's on Concurrently: 5  
 Wire Temperature: 50°C (122°F) MICC High Capacitance Cable: Yes

ADD HARDWARE: New Loop, Add 2nd Loop to Card Return, Loop Branch Tap, End Tap, Copy Selection, Copy Loop, Readdress Loop, Delete Selection

DETECTORS | PHOTO 2 | PHOTO/HEAT 0 | HEAT 3 | PHOTO/HEAT/CO 0 | DUCT 0 |  
 BASES | STANDARD 2 | CONTINUITY 0 | SOUNDER 0 | SOUNDER BEACON 3 |  
 CALLS/PULLS | CP INDOOR 2 | CP OUTDOOR 0 | SINGLE 0 | BREAKGLASS 3 | PUSH PULL 0 |  
 MODULES | SIGNAL IAM 0 | ISOLATOR 0 | MULTI IO 0 | RELAY 3 | MONITOR 0 |  
 LP SOUNDRERS | MINI IAM 0 | DUAL IAM 1 |  
 LP SOUNDRERS | SOUNDER 3 | SDR/BEACON 0 | WP SDR 0 | WP SDR/BEACON 0 |

Select across these 4 columns to edit devices

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP	10	14 AWG						311	379	210	0.078		40.000			
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3.250	●	9.25					0.078	0.014	39.986	0.003	0.001	
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3.250	●	9.25					0.074	0.014	39.972	0.007	0.001	
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4	12.050	●	9.25	0.25				0.071	0.263	39.709	0.019	0.253	
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash																
6	1-1		T-TAP/SPUR																
7	1-1		MX PULL STATION DOUBLE ACTION																
8	1-1		MX PULL STATION DOUBLE ACTION																
9	1-1		MX PULL STATION DOUBLE ACTION																
10	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash																
11	1-1		INDOOR UL CP W ISOLATOR MX																
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14	1-1		MX RELAY IAM																
15	1-1		MX RELAY IAM																
16	1-1		MX DUAL INPUT IAM																
17	1-1		ADDR WALL SOUNDER RED   High Volume																
18	1-1		ADDR WALL SOUNDER RED   High Volume																
19	1-1		ADDR WALL SOUNDER RED   High Volume																
20	1-1		MX LOOP RETURN																
Total																			

Select across these 4 columns to edit devices

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address
1	1-1		ESMX LOOP		14 AWG	
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15
6	1-1		T-TAP/SPUR			
7	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	18
8	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	19
9	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	20
10	1-1		END			
11	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17
12	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6
13	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7
14	1-1		MX RELAY IAM	10	14 AWG	8
15	1-1		MX RELAY IAM	10	14 AWG	9
16	1-1		MX RELAY IAM	10	14 AWG	10
17	1-1		MX DUAL INPUT IAM	10	14 AWG	11
18	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12
19	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13
20	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14
21	1-1		MX LOOP RETURN	40	14 AWG	
Total						

Legend:   
 Green: < 80% of maximum allowed   
 Yellow: 80 -100% of maximum allowed   
 Red: > 100% of maximum allowed

- Select an insertion point
- Select End Tap
- End Tap inserted
- Note: Devices after End Tap return to main loop

# Example of a T-TAP / SPUR off a T-TAP / SPUR

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address
1	1-1		ESMX LOOP		14 AWG	
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2
4	1-1	1	MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4
5	1-1	1	MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15
6	1-1		T-TAP/SPUR		14 AWG	
7	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	18
8	1-1	2	MX PULL STATION DOUBLE ACTION	10	14 AWG	19
9	1-1		T-TAP/SPUR		14 AWG	
10	1-1		MX RELAY IAM	10	14 AWG	21
11	1-1		MX DUAL INPUT IAM	10	14 AWG	22
12	1-1		END		14 AWG	
13	1-1	2	MX PULL STATION DOUBLE ACTION	10	14 AWG	20
14	1-1		END		14 AWG	
15	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17
16	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6
17	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7
18	1-1		MX RELAY IAM	10	14 AWG	8
19	1-1		MX RELAY IAM	10	14 AWG	9
20	1-1	1	MX RELAY IAM	10	14 AWG	10
21	1-1		MX DUAL INPUT IAM	10	14 AWG	11
22	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12
23	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13
24	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14
25	1-1		MX LOOP RETURN	40	14 AWG	
<b>Total</b>						

- 1) Devices connected to Main Loop
- 2) Devices connected to T-Tap / Spur 1
- 3) Devices connected to T-Tap / Spur 2

# Example of Adding a Second Isolated Loop Card to the Main Loop Card

The screenshot shows the MX Loop Designer software interface. The toolbar at the top right has the 'Add 2nd Loop to Card' button highlighted with a red box and a hand icon labeled '2'. The main table lists various devices with columns for Item, Loop, Point Label, Description and Setting, Wire Length, Wire Gauge, Address, Device mA, LEDs On, Cable Ω, Isolator Ω, Loop DC Units, Available AC Units, Total Wire, Left Feed (Amps, Volt Drop, Volts at Device), and Right Feed (Class A Amps, Class A Volt Drop, Volts at Dev Cls A). A red box highlights rows 25-37, with hand icons labeled 1, 3, 4, 5, and 6 pointing to specific cells.

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
22	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12	8.475		9.25	0.25				0.025	0.255	38.407	0.061	0.261	39.168
23	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13	8.475		9.25	0.25				0.017	0.253	38.153	0.070	0.263	39.429
24	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14	8.475		9.25	0.25				0.008	0.252	37.902	0.078	0.308	39.692
25	1-1		MX LOOP RETURN	40	14 AWG				9.25								0.078		40.000
26	1-2		ESMX LOOP EXPANSION CARD		14 AWG				9.25					0.036		40.000			
27	1-2		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	23, 24	9.050		9.25	0.25				0.036	0.257	39.743	0.009	0.252	38.411
28	1-2		INDOOR UL CP W ISOLATOR MX	10	14 AWG	25	0.300		9.25	0.25				0.027	0.255	39.488	0.009	0.252	38.663
29	1-2		INDOOR UL CP W ISOLATOR MX	10	14 AWG	26	0.300		9.25	0.25				0.027	0.255	39.233	0.010	0.252	38.915
30	1-2		MX RELAY IAM	10	14 AWG	27	0.300		9.25					0.027	0.005	39.228	0.010	0.002	39.167
31	1-2		MX RELAY IAM	10	14 AWG	28	0.300		9.25					0.026	0.005	39.224	0.010	0.002	39.168
32	1-2		MX RELAY IAM	10	14 AWG	29	0.300		9.25					0.026	0.005	39.219	0.011	0.002	39.170
33	1-2		MX DUAL INPUT IAM	10	14 AWG	30	0.250		9.25					0.026	0.005	39.214	0.011	0.002	39.172
34	1-2		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	31	8.475		9.25	0.25				0.025	0.255	38.959	0.019	0.254	39.174
35	1-2		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	32	8.475		9.25	0.25				0.017	0.253	38.706	0.028	0.255	39.428
36	1-2		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	33	8.475		9.25	0.25				0.008	0.252	38.455	0.036	0.317	39.683
37	1-2		MX LOOP RETURN	100	14 AWG				9.25								0.036		40.000
<b>Total</b>																			

- 1) Select an insertion point
- 2) Select Add 2<sup>nd</sup> Loop to Card
- 3) 2<sup>nd</sup> Loop Card added to Main Loop Card
- 4) Add Devices
- 5) Add a Loop Return for a Class A Circuit
- 6) Note: Loop Numbering Loop 1-2

# Adding a New Loop

File FQQ Quick Quote IDNAC P2P NAC P2P **MX Loop Designer** Home Insert Draw Page Layout Formulas Data Review View Automate Developer Help

Home Menu Detectors Detectors with Isolators Duct Detector Modules Call Pull LP Sounder LP Sounder LP Wall LP Wall Sounder LP Wall LP Wall Sounder Beacon WP LP Wall Sounder Beacon WP

Wire Length: 10 Unit of Measure: Meters  
 Wire Gauge: 14 AWG LED's on Concurrently: 5  
 Wire Temperature: 50°C (122°F) MICC High Capacitance Cable: Yes

ADD HARDWARE: Add 2nd Loop to Card Return, Loop Branch Tap, End Tap  
 CONTROLS AND: Copy Selection, Copy Loop, Readdress Loop, Delete Select

D67

DETECTORS	PHOTO	4	PHOTO/HEAT	0	HEAT	5	PHOTO/HEAT/CO	0	DUCT	0
BASES	STANDARD	3	CONTINUITY	0	SOUNDER	0	SOUNDER BEACON	6		
CALLS/PULLS	CP INDOOR	4	CP OUTDOOR	0	SINGLE	2	BREAKGLASS	3	PUSH PULL	0
MODULES	SIGNAL IAM	0	ISOLATOR	0	MULTI IO	0	RELAY	9	MONITOR	0
LP SOUNDERS	MINI IAM	0	DUAL IAM	3						
	SOUNDER	6	SDR/BEACON	0	WP SDR	0	WP SDR/BEACON	0		

Select across these 4 columns to edit devices

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Left Feed			Right Feed		
														Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
31	1-2		MX RELAY IAM	10	14 AWG	28	0.300		9.25					0.026	0.005	39.224	0.010	0.002	39.168
32	1-2		MX RELAY IAM	10	14 AWG	29	0.300		9.25					0.026	0.005	39.219	0.011	0.002	39.170
33	1-2		MX DUAL INPUT IAM	10	14 AWG	30	0.250		9.25					0.026	0.005	39.214	0.011	0.002	39.172
34	1-2		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	31	8.475		9.25	0.25				0.025	0.255	38.959	0.019	0.254	39.174
35	1-2		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	32	8.475		9.25	0.25				0.017	0.253	38.706	0.028	0.255	39.428
36	1-2		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	33	8.475		9.25	0.25				0.008	0.252	38.455	0.036	0.317	39.683
37	1-2		MX LOOP RETURN	100	14 AWG				9.25										40.000
38	2-1		ESMX LOOP		14 AWG				9.25		157	397	140	0.039		40.000			
39	2-1		MX SSD PHOTO   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	1, 2	12.050	●	9.25	0.25				0.039	0.257	39.743	0.012	0.252	39.420
40	2-1		MX PULL STATION SINGLE ACTION	10	14 AWG	3	5.600	●	9.25					0.027	0.005	39.738	0.018	0.003	39.672
41	2-1		MX PHOTO   4 inch BASE UL	10	14 AWG	4	3.250	●	9.25					0.022	0.004	39.734	0.021	0.004	39.675
42	2-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 6	12.050	●	9.25	0.25				0.018	0.253	39.480	0.033	0.256	39.679
43	2-1		MX PULL STATION SINGLE ACTION	10	14 AWG	7	5.600	●	9.25					0.006	0.001	39.479	0.039	0.007	39.935
44	2-1		MX RELAY IAM	10	14 AWG	8	0.300		9.25					0.001	0.000	39.479	0.039	0.007	39.942
45	2-1		MX RELAY IAM	10	14 AWG	9	0.300		9.25					0.000	0.000	39.479	0.039	0.051	39.949
46	2-1		MX LOOP RETURN	70	14 AWG				9.25										40.000
<b>Total</b>																			

Legend: < 80% of maximum allowed (Green), 80-100% of maximum allowed (Yellow), > 100% of maximum allowed (Red)

- 1) Select an insertion point
- 2) Select New Loop
- 3) New Loop Added
- 4) Add Devices
- 5) Add a Loop Return for a Class A Circuit
- 6) Note: Loop Numbering Loop 2-1







# ESMX Loop Designer Settings

# ESMX Loop Designer Settings

1	Wire Length	10	Unit of Measure	Meters	4
2	Wire Gauge	14 AWG	LED's on Concurrently	5	5
3	Wire Temperature	50°C (122°F)	MICC High Capacitance Cable	Yes	6
7 MX LOOP DESIGNER SETTINGS					

1 Default Wire Length used when adding new devices.

2 Default Wire Gauge used when adding new devices.

3 Default Wire Temperature setting for project.

 75°C (167°F)

 50°C (122°F)

4 Unit of Measure for wiring distances.

 Feet, Resistance shown  $\Omega$  / 1000ft.

Meters, Resistance shown  $\Omega$  / km.

5 LEDs on Concurrently. This will determine the maximum number of LEDs turned on in Alarm per loop, as per the configuration software settings.

 5

 10

 20

 30

6 Select if MICC High Capacitance Cable is used.

 Yes, Reduces Available AC Units.

 No

7 All Settings are saved as defaults when saving a project.



# ESMX Loop Designer Controls and Editing



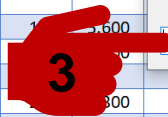
# Controls and Editing – Copy Selection

- 1) Highlight Selection to Copy
- 2) Click Copy Selection
- 3) Select 1 to Insert or 2 to Add to End and Press OK
- 4) If 1 is Selected, Enter the Item No you wish to copy the selection below and press OK

Copy Selection Copy Loop Readdress Loop Delete Selection Push Wire Push Gauge Reset Project

CONTROLS AND EDITING

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs on in Alarm	Cable Ohm	Isolator Ohm	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		14 AWG									0.14		40.000			
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3.250							0.178	0.014	39.986	0.003	0.001	37.838
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3.250							0.175	0.014	39.972	0.007	0.001	37.838
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4	12.050							0.172	0.263	39.708	0.019	0.253	37.840
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15	12.050							0.160	0.261	39.447	0.031	0.250	38.093
6	1-1		T-TAP/SPUR		14 AWG									0.148		39.447	0.042	0.008	38.343
7	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	1	2.600							0.111	0.002	39.445	0.011	0.002	38.341
8	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	2	2.600							0.106	0.001	39.444	0.006	0.001	38.340
9	1-1		T-TAP/SPUR		14 AWG									0.003		39.444	0.003		38.340
10	1-1		MX RELAY IAM	10	14 AWG	1	0.300		9.25					0.001	0.000	39.444	0.001	0.000	38.340
11	1-1		MX DUAL INPUT IAM	10	14 AWG	22	0.250		9.25							39.444			38.340
12	1-1		END		14 AWG				9.25							39.444			38.340
13	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	20	2.600		9.25							39.444			38.340
14	1-1		END		14 AWG				9.25							39.444			38.340
15	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17	9.050		9.25	0.25						39.444			38.340
16	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6	0.300		9.25	0.25						39.444			38.340
17	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7	0.300		9.25	0.25						39.444			38.340
18	1-1		MX RELAY IAM	10	14 AWG	8	0.300		9.25	0.25						39.444			38.340
19	1-1		MX RELAY IAM	10	14 AWG	9	0.300		9.2	0.25						39.444			38.340
20	1-1		MX RELAY IAM	10	14 AWG	10	0.300		9.2	0.25				0.026	0.005	38.666	0.053	0.010	39.148
21	1-1		MX DUAL INPUT IAM	10	14 AWG	11	0.250		9.25	0.25				0.026	0.005	38.661	0.053	0.010	39.158
22	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12	8.475		9.25	0.25				0.025	0.255	38.407	0.061	0.261	39.168
23	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13	8.475		9.25	0.25				0.017	0.253	38.153	0.070	0.263	39.429
24	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14	8.475		9.25	0.25				0.008	0.252	37.902	0.078	0.308	39.692
25	1-1		MX LOOP RETURN	40	14 AWG				9.25							39.444			40.000

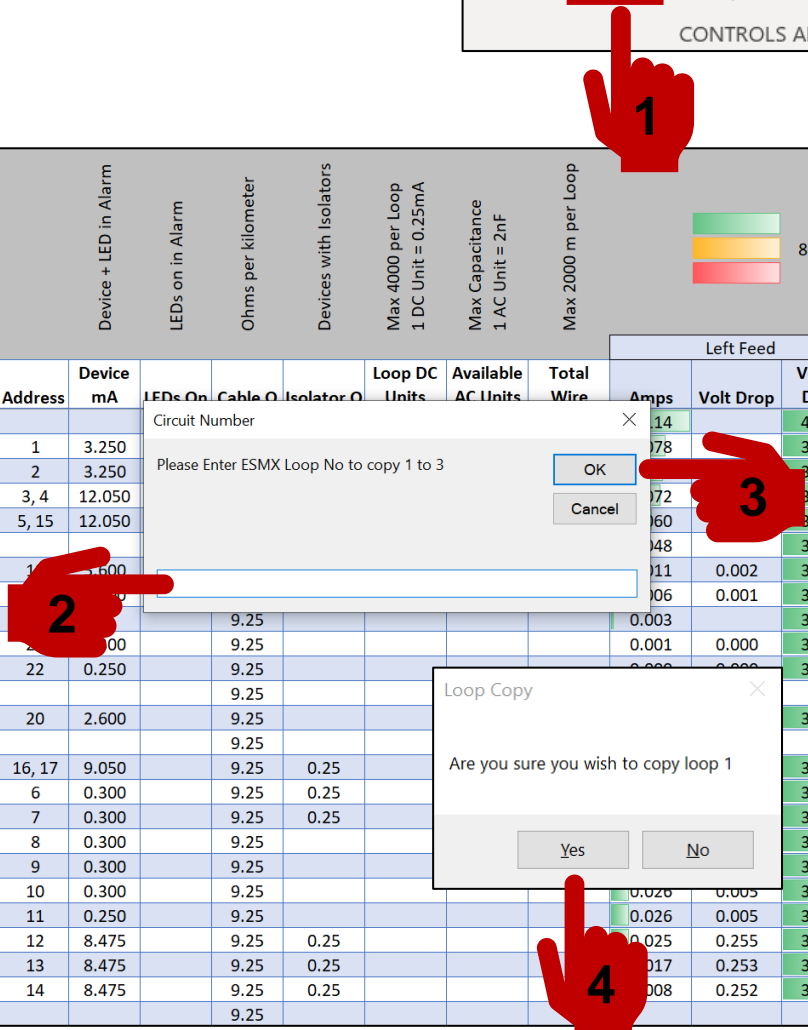


# Controls and Editing – Copy Loop

- 1) Click Copy Loop
- 2) Enter the ESMX Loop Number to Copy
- 3) Press OK
- 4) Click Yes to Confirm
- 5) A New Loop will be copied to the end of the ESMX Loop Designer Grid
- 6) **NOTE: In the below Example Loop 4 will be created**

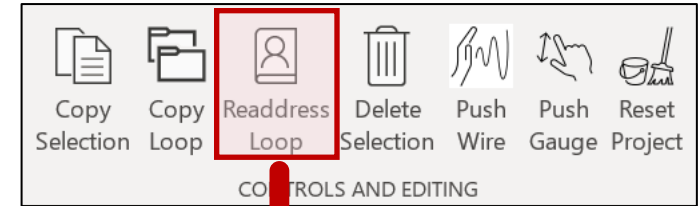


Select across these 4 columns to edit devices				Wire Length	Wire Gauge	Address	Device mA	LEDs on in Alarm	Ohms per kilometer	Devices with Isolators	Max 4000 per Loop 1 DC Unit = 0.25mA	Max Capacitance 1 AC Unit = 2nF	Max 2000 m per Loop	Left Feed	Right Feed			
Item	Loop	Point Label	Description and Setting										Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		14 AWG								14	0.000	40.000			
2	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3.250						0.078	0.000	39.986	0.003	0.001	37.838
3	1-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3.250						0.072	0.000	39.972	0.007	0.001	37.838
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4	12.050						0.060	0.000	39.708	0.019	0.253	37.840
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 15	12.050						0.048	0.000	39.447	0.031	0.250	38.093
6	1-1		T-TAP/SPUR		14 AWG								0.048	0.000	39.447	0.042	0.008	38.343
7	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	1	2.600						0.011	0.002	39.445	0.011	0.002	38.341
8	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	2	2.600						0.006	0.001	39.444	0.006	0.001	38.340
9	1-1		T-TAP/SPUR		14 AWG								0.003	0.000	39.444	0.003	0.000	38.340
10	1-1		MX RELAY IAM	10	14 AWG	2	0.300	9.25					0.001	0.000	39.444	0.001	0.000	38.340
11	1-1		MX DUAL INPUT IAM	10	14 AWG	22	0.250	9.25					0.000	0.000	39.444	0.000	0.000	38.340
12	1-1		END		14 AWG			9.25							39.444	0.000	0.000	38.340
13	1-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	20	2.600	9.25							39.444	0.003	0.000	38.339
14	1-1		END		14 AWG			9.25							39.444	0.003	0.000	38.339
15	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	16, 17	9.050	9.25	0.25						39.191	0.051	0.259	38.351
16	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	6	0.300	9.25	0.25						38.936	0.051	0.259	38.610
17	1-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	7	0.300	9.25	0.25						38.681	0.052	0.260	38.870
18	1-1		MX RELAY IAM	10	14 AWG	8	0.300	9.25							38.676	0.052	0.010	39.129
19	1-1		MX RELAY IAM	10	14 AWG	9	0.300	9.25							38.671	0.052	0.010	39.139
20	1-1		MX RELAY IAM	10	14 AWG	10	0.300	9.25							38.666	0.053	0.010	39.148
21	1-1		MX DUAL INPUT IAM	10	14 AWG	11	0.250	9.25					0.026	0.005	38.661	0.053	0.010	39.158
22	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	12	8.475	9.25	0.25				0.025	0.255	38.407	0.061	0.261	39.168
23	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	13	8.475	9.25	0.25				0.017	0.253	38.153	0.070	0.263	39.429
24	1-1		ADDR WALL SOUNDER RED   High Volume	10	14 AWG	14	8.475	9.25	0.25				0.008	0.252	37.902	0.078	0.308	39.692
25	1-1		MX LOOP RETURN	40	14 AWG			9.25							0.078			40.000

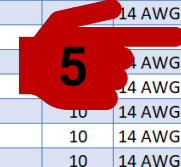
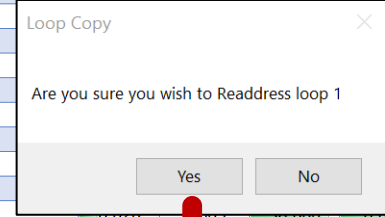
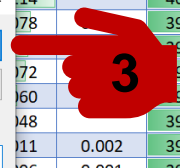
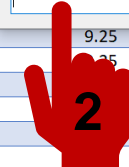


# Controls and Editing – Readdress Loop

- 1) Click Readdress Loop
- 2) Enter the ESMX Loop Number to Readdress
- 3) Press OK
- 4) Click Yes to Confirm
- 5) **NOTE: Before, Example based on Loop 1**
- 6) **NOTE: After, Devices have been readdressed sequentially**

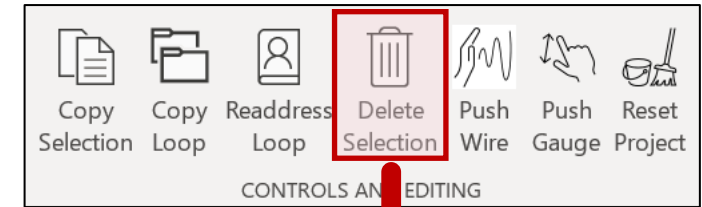


Item	Loop	Point Label	Description and Setting	Address	Wire Length	Wire Gauge	Address	Device mA	LEDs on in Alarm	Cable Ohms	Isolator Ohms	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP			14 AWG									14	0.000	40.000			
2	1-1		MX PHOTO   4 inch BASE UL	1	10	14 AWG	1	3.250							178	0.000	39.986	0.003	0.001	37.838
3	1-1		MX PHOTO   4 inch BASE UL	2	10	14 AWG	2	3.250							172	0.000	39.972	0.007	0.001	37.838
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	3, 4	10	14 AWG	3, 4	12.050							160	0.000	39.708	0.019	0.253	37.840
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	5, 6	10	14 AWG	5, 15	12.050							148	0.000	39.447	0.031	0.250	38.093
6	1-1		T-TAP/SPUR			14 AWG									111	0.002	39.447	0.042	0.008	38.343
7	1-1		MX PULL STATION DOUBLE ACTION	7	10	14 AWG	18	5.600							106	0.001	39.445	0.011	0.002	38.341
8	1-1		MX PULL STATION DOUBLE ACTION	8	10	14 AWG	19	2.600							106	0.001	39.444	0.006	0.001	38.340
9	1-1		T-TAP/SPUR			14 AWG									103	0.000	39.444	0.003	0.000	38.340
10	1-1		MX RELAY IAM	9	10	14 AWG	21	0.300							101	0.000	39.444	0.001	0.000	38.340
11	1-1		MX DUAL INPUT IAM	10	10	14 AWG	22	0.250							100	0.000	39.444	0.000	0.000	38.340
12	1-1		END			14 AWG									99	0.000	39.444	0.000	0.000	38.340
13	1-1		MX PULL STATION DOUBLE ACTION	11	10	14 AWG	20	2.600							98	0.000	39.444	0.000	0.000	38.339
14	1-1		END			14 AWG									97	0.000	39.444	0.000	0.000	38.339
15	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	12, 13	10	14 AWG	16, 17	9.050		9.25	0.25				96	0.000	39.444	0.000	0.000	38.339
16	1-1		INDOOR UL CP W ISOLATOR MX	14	10	14 AWG	6	0.300		9.25	0.25				95	0.000	39.444	0.000	0.000	38.339
17	1-1		INDOOR UL CP W ISOLATOR MX	15	10	14 AWG	7	0.300		9.25	0.25				94	0.000	39.444	0.000	0.000	38.339
18	1-1		MX RELAY IAM	16	10	14 AWG	8	0.300		9.25	0.25				93	0.000	39.444	0.000	0.000	38.339
19	1-1		MX RELAY IAM	17	10	14 AWG	9	0.300		9.25	0.25				92	0.000	39.444	0.000	0.000	38.339
20	1-1		MX RELAY IAM	18	10	14 AWG	10	0.300		9.25	0.25				91	0.000	39.444	0.000	0.000	38.339
21	1-1		MX DUAL INPUT IAM	19	10	14 AWG	11	0.250		9.25	0.25				90	0.026	38.661	0.053	0.010	39.158
22	1-1		ADDR WALL SOUNDER RED   High Volume	20	10	14 AWG	12	8.475		9.25	0.25				89	0.025	38.407	0.061	0.261	39.168
23	1-1		ADDR WALL SOUNDER RED   High Volume	21	10	14 AWG	13	8.475		9.25	0.25				88	0.017	38.153	0.070	0.263	39.429
24	1-1		ADDR WALL SOUNDER RED   High Volume	22	10	14 AWG	14	8.475		9.25	0.25				87	0.008	37.902	0.078	0.308	39.692
25	1-1		MX LOOP RETURN		40	14 AWG				9.25	0.25				86	0.000	39.444	0.078	0.308	40.000

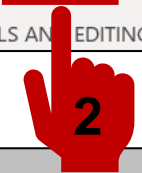
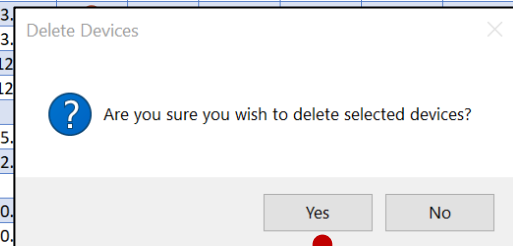


# Controls and Editing – Delete Selection

- 1) Highlight Selection to Delete
- 2) Click Delete Section
- 3) Click Yes to Confirm
- 4) Selection will be deleted



Select across these 4 columns to edit devices																Left Feed			Right Feed		
Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A		
60	4-1		ESMX LOOP		14 AWG				9.25		458	344	430	0.114		40.000					
61	4-1		MX PHOTO   4 inch BASE UL	10	14 AWG	1	3							0.078	0.014	39.986	0.003	0.001	37.838		
62	4-1		MX PHOTO   4 inch BASE UL	10	14 AWG	2	3							0.075	0.014	39.972	0.007	0.001	37.838		
63	4-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	3, 4	12							0.072	0.263	39.708	0.019	0.253	37.840		
64	4-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	5, 6	12							0.060	0.261	39.447	0.031	0.250	38.093		
65	4-1		T-TAP/SPUR		14 AWG									0.048		39.447	0.042	0.008	38.343		
66	4-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	7	5							0.011	0.002	39.445	0.011	0.002	38.341		
67	4-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	8	2							0.006	0.001	39.444	0.006	0.001	38.340		
68	4-1		T-TAP/SPUR		14 AWG									0.003		39.444	0.003		38.340		
69	4-1		MX RELAY IAM	10	14 AWG	9	0							0.001	0.000	39.444	0.001	0.000	38.340		
70	4-1		MX DUAL INPUT IAM	10	14 AWG	10	0							0.000	0.000	39.444	0.000	0.000	38.340		
71	4-1		END		14 AWG				9.25												
72	4-1		MX PULL STATION DOUBLE ACTION	10	14 AWG	11	2.600		9.25					0.003	0.000	39.444	0.003	0.000	38.339		
73	4-1		END		14 AWG				9.25												
74	4-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	10	14 AWG	12, 13	9.050		9.25	0.25				0.036	0.257	39.191	0.051	0.259	38.351		
75	4-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	14	0.300		9.25	0.25				0.027	0.255	38.936	0.051	0.259	38.610		
76	4-1		INDOOR UL CP W ISOLATOR MX	10	14 AWG	15	0.300		9.25	0.25				0.027	0.255	38.681	0.052	0.260	38.870		
77	4-1		MX RELAY IAM	10	14 AWG	16	0.300		9.25					0.027	0.005	38.676	0.052	0.010	39.129		
78	4-1		MX RELAY IAM	10	14 AWG	17	0.300		9.25					0.026	0.005	38.671	0.052	0.010	39.139		
79	4-1		MX RELAY IAM	10	14 AWG	18	0.300		9.25					0.026	0.005	38.666	0.053	0.010	39.148		
80	4-1		MX DUAL INPUT IAM	10	14 AWG	19	0.250		9.25					0.026	0.005	38.661	0.053	0.010	39.158		
81	4-1		ADDR WALL SOUNDER RED   High Volume Fast Flash	63	4-1												10	14 AWG	3, 4		
82	4-1		ADDR WALL SOUNDER RED   High Volume Fast Flash	64	4-1												10	14 AWG	5, 6		
83	4-1		ADDR WALL SOUNDER RED   High Volume Fast Flash	65	4-1												10	14 AWG	12, 13		
84	4-1		MX LOOP RETURN																		





# Controls and Editing – Push Wire

- 1) Click Push Wire
- 2) Enter Wire Length and Click OK
- 3) Enter Loop No or Enter 'ALL' to update all Circuits and Click OK
- 4) **NOTE: Before, Example based on Loop 1**
- 5) **NOTE: After, Wire Lengths have been updated to 20m**

Copy Selection Copy Loop Readdress Loop Delete Selection **Push Wire** Push Gauge Reset Project

CONTROLS AND EDITING

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Left Feed Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A	
1	1-1		ESMX LOOP	20	10	14 AWG									4		40.000				
2	1-1		MX PHOTO   4 inch BASE UL	20	10	14 AWG	1								8	0.014	39.986	0.003	0.001	37.838	
3	1-1		MX PHOTO   4 inch BASE UL	20	10	14 AWG	2								5	0.014	39.972	0.007	0.001	37.838	
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast	20	10	14 AWG	3, 4								2	0.263	39.708	0.019	0.253	37.840	
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast	20	10	14 AWG	5, 6								0	0.261	39.447	0.031	0.250	38.093	
6	1-1		T-TAP/SPUR	20	10	14 AWG									8		39.447	0.042	0.008	38.343	
7	1-1		MX PULL STATION DOUBLE ACTION	20	10	14 AWG	7								1	0.002	39.445	0.011	0.002	38.341	
8	1-1		MX PULL STATION DOUBLE ACTION	20	10	14 AWG	8								6	0.001	39.444	0.006	0.001	38.340	
9	1-1		T-TAP/SPUR	20	10	14 AWG									3		39.444	0.003		38.340	
10	1-1		MX RELAY IAM	20	10	14 AWG	9								1	0.000	39.444	0.001	0.000	38.340	
11	1-1		MX DUAL INPUT IAM	20	10	14 AWG	10	0.25		9.25					0.000	0.000	39.444	0.000	0.000	38.340	
12	1-1		END	20	10	14 AWG				9.25											
13	1-1		MX PULL STATION DOUBLE ACTION	20	10	14 AWG	11	2.00		9.25								0.003	0.000	38.339	
14	1-1		END	20	10	14 AWG				9.25											
15	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast	20	10	14 AWG	12, 13	9.05		9.25								0.051	0.259	38.351	
16	1-1		INDOOR UL CP W ISOLATOR MX	20	10	14 AWG	14	0.300		9.25								0.051	0.259	38.610	
17	1-1		INDOOR UL CP W ISOLATOR MX	20	10	14 AWG	15	0.300		9.25								0.052	0.260	38.870	
18	1-1		MX RELAY IAM	20	10	14 AWG	16	0.300		9.25								0.052	0.010	39.129	
19	1-1		MX RELAY IAM	20	10	14 AWG	17	0.300		9.25								0.052	0.010	39.139	
20	1-1		MX RELAY IAM	20	10	14 AWG	18	0.300		9.25								0.053	0.010	39.148	
21	1-1		MX DUAL INPUT IAM	20	10	14 AWG	19	0.250		9.25						0.026	0.005	38.661	0.053	0.010	39.158
22	1-1		ADDR WALL SOUNDER RED   High Volume	20	10	14 AWG	20	8.475		9.25	0.008					0.025	0.255	38.407	0.061	0.261	39.168
23	1-1		ADDR WALL SOUNDER RED   High Volume	20	10	14 AWG	21	8.475		9.25						0.017	0.253	38.153	0.070	0.263	39.429
24	1-1		ADDR WALL SOUNDER RED   High Volume	20	10	14 AWG	22	8.475		9.25						0.008	0.252	37.902	0.078	0.308	39.692
25	1-1		MX LOOP RETURN	20	40	14 AWG				9.25								0.078		40.000	

Push Wire Length

Enter Length of Wire 1 - 2000 Meters

OK

Cancel

20

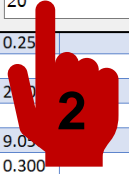
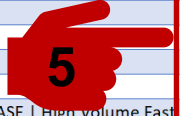
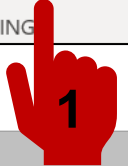
Circuit Number

Please Enter ESMX Loop No to update wire length or enter ALL to update all circuits

OK

Cancel

1



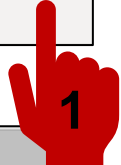


# Controls and Editing – Reset Project

- 1) Click Reset Project
- 2) Click Yes to Confirm you wish to Reset the Project
- 3) Project is Reset

Copy Selection Copy Loop Readdress Loop Delete Selection Push Wire Push Gauge **Reset Project**

CONTROLS AND EDITING



DETECTORS	PHOTO	11	PHOTO/HEAT	0	HEAT	9	PHOTO/HEAT/CO	0	DUCT	0
BASES	STANDARD	5	CONTINUITY	0	SOUNDER	0	SOUNDER BEACON	15		
CALLS/PULLS	CP INDOOR	8	CP OUTDOOR	0	SINGLE	7	BREAKGLASS	3	PUSH PULL	0
MODULES	SIGNAL IAM	0	ISOLATOR	0	MULTI IO	0	RELAY	15	MONITOR	0
LP SOUNDER	MINI IAM	0	DUAL IAM	5	WP SDR	0	WP SDR/BEACON	0		
	SOUNDER	12	SDR/BEACON	0						

Select across these 4 columns to edit devices

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP													40.000			
2	1-1		MX PHOTO   4 inch BASE UL	20	16 AWG	2	3.250	●	14.76					0.075	0.046	39.954	0.003	0.002	37.621
3	1-1		MX PHOTO   4 inch BASE UL	20	16 AWG	2	3.250	●	14.76					0.075	0.044	39.910	0.007	0.004	37.622
4	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	20	16 AWG	3, 4	12.050	●	14.76	0.25				0.072	0.292	39.617	0.019	0.261	37.626
5	1-1		MX HEAT   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	20	16 AWG	5, 6	12.050	●	14.76	0.25				0.060	0.285	39.332	0.031	0.250	37.887

Reset ESMX Loop Designer

Are you sure you wish to reset the ESMX Loop Designer?

Yes No

Legend:  < 80% of maximum allowed  
 80 -100% of maximum allowed  
 > 100% of maximum allowed



DETECTORS	PHOTO	0	PHOTO/HEAT	0	HEAT	0	PHOTO/HEAT/CO	0	DUCT	0
BASES	STANDARD	0	CONTINUITY	0	SOUNDER	0	SOUNDER BEACON	0		
CALLS/PULLS	CP INDOOR	0	CP OUTDOOR	0	SINGLE	0	BREAKGLASS	0	PUSH PULL	0
MODULES	SIGNAL IAM	0	ISOLATOR	0	MULTI IO	0	RELAY	0	MONITOR	0
LP SOUNDER	MINI IAM	0	DUAL IAM	0	WP SDR	0	WP SDR/BEACON	0		
	SOUNDER	0	SDR/BEACON	0						

Select across these 4 columns to edit devices

Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		16 AWG				14.76			420				40.000			
Total																			

Legend:  < 80% of maximum allowed  
 80 -100% of maximum allowed  
 > 100% of maximum allowed





# ESMX Loop Designer Cell Fill Color Codes



# ESMX Loop Designer Cell Fill Color Codes

**GREEN = GOOD  
CIRCUIT VALUE OK**



**AMBER = CAUTION  
CIRCUIT VALUE BETWEEN  
80% - 100% OF MAX**

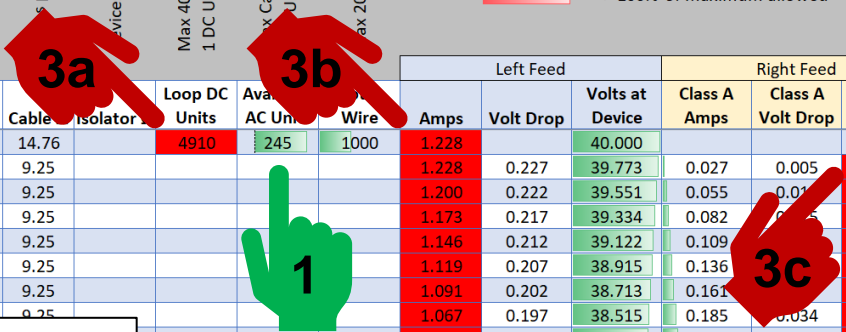


**RED = STOP  
IF ANY CELLS ARE RED  
CIRCUIT IS DEAD.**



Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cables per Kilometer	Isolators	Loop DC Units	Available AC Units	Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A
1	1-1		ESMX LOOP		16 AWG						4910	245	1000	1.228		40.000			
2	1-1		MX PHOTO   LP SOUNDER BASE 85DB @ 10FT   Fixed Volume	10	14 AWG	1	27.250	●	9.25					1.228	0.227	39.773	0.027	0.005	23.016
3	1-1		MX PHOTO   LP SOUNDER BASE 85DB @ 10FT   Fixed Volume	10	14 AWG	2	27.250	●	9.25					1.200	0.222	39.551	0.055	0.015	23.021
4	1-1		MX PHOTO   LP SOUNDER BASE 85DB @ 10FT   Fixed Volume	10	14 AWG	3	27.250	●	9.25					1.173	0.217	39.334	0.082	0.025	23.031
5	1-1		MX PHOTO   LP SOUNDER BASE 85DB @ 10FT   Fixed Volume	10	14 AWG	4	27.250	●	9.25					1.146	0.212	39.122	0.109	0.034	23.046
6	1-1		MX PHOTO   LP SOUNDER BASE 85DB @ 10FT   Fixed Volume	10	14 AWG	5	27.250	●	9.25					1.119	0.207	38.915	0.136	0.043	23.066
7	1-1		MX PHOTO   LP SOUNDER BASE 85DB @ 10FT   Fixed Volume	10	14 AWG	6	24.250		9.25					1.091	0.202	38.713	0.161	0.052	23.092
8	1-1		MX PHOTO   LP SOUNDER BASE 85DB @ 10FT   Fixed Volume	10	14 AWG	7	24.250		9.25					1.067	0.197	38.515	0.185	0.061	23.121
9	1-1													1.043	0.193	38.322	0.209	0.069	23.155
10	1-1													1.019	0.188	38.134	0.233	0.078	23.194
11	1-1													0.994	0.184	37.950	0.258	0.087	23.237
12	1-1													0.970	0.179	37.771	0.282	0.096	23.285
13	1-1													0.946	0.175	37.596	0.306	0.105	23.337
14	1-1													0.922	0.171	37.425	0.330	0.114	23.394
15	1-1													0.897	0.166	37.259	0.355	0.123	23.455
16	1-1													0.873	0.162	37.097	0.379	0.132	23.520
17	1-1													0.849	0.157	36.940	0.403	0.141	23.590
18	1-1													0.825	0.153	36.788	0.427	0.150	23.665
19	1-1													0.800	0.148	36.640	0.452	0.159	23.744
20	1-1													0.776	0.144	36.496	0.476	0.168	23.828
21	1-1													0.752	0.139	36.357	0.500	0.177	23.916
22	1-1													0.728	0.135	36.222	0.524	0.186	24.008
23	1-1													0.703	0.130	36.092	0.549	0.195	24.105
24	1-1													0.679	0.126	35.967	0.573	0.204	24.207
25	1-1													0.655	0.121	35.845	0.597	0.213	24.313
26	1-1													0.631	0.117	35.729	0.621	0.222	24.423
27	1-1													0.606	0.112	35.617	0.646	0.231	24.538
28	1-1													0.582	0.108	35.509	0.670	0.240	24.658
29	1-1													0.558	0.103	35.406	0.694	0.249	24.781

- 1) Loop DC Units, Available AC Units and Total Wire is Shown at the Loop Level Per Loop
- 2) Amps, and Volts at Device is Shown at the Point Level Per Device
- 3) NOTE: In this Example Loop 1 has Failed:
  - a) Total Amps has been exceeded (Show at the Device Level)
  - b) DC units has been exceeded (Shown at the Loop Level)
  - c) Volts at Device is below the Minimum (Shown at the Device Level)



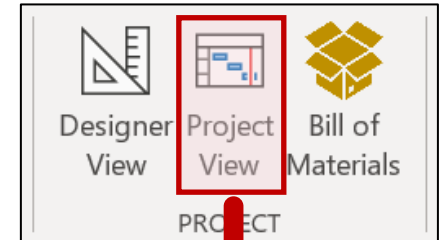


# ESMX Loop Designer Project Menu

# Project – Project View

- 1) Click Project View
- 2) Switches to Project View Sheet
- 3) Enter Circuit No to view Loop Information
- 4) Click to Print Project View – This will enable Print Preview first.

**NOTE: This sheet has been formatted for landscape printing which can be used in Project Submittals and/or Project Handover Documentation**

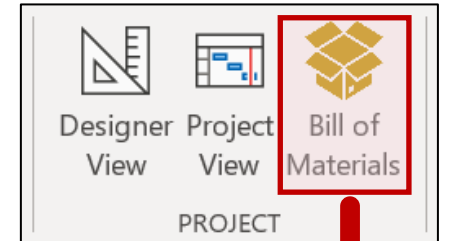



Circuit Number	<b>1</b>		<a href="#">Click here to Print Project View</a>
Project Name	Example Project		Project Phase
Customer Name			Prepared By Jason Crouch
Project Location			Date 11/10/2023


Item	Point Label	Loop	Address	Devices and Setting	Wired To	Wire Length	Wire Gauge	Device mA	Left Feed Calculations			Right Feed Calculations		
									Amps	Volt Drop	Volts at Device	Amps	Volt Drop	Volts at Device
1		1-1		MX LOOP			14 AWG		0.088		40.000			
2		1-1	1	MX HEAT   4 inch BASE UL	MX LOOP	20	14 AWG	3	0.088	0.036	39.964	0.003	0.001	37.940
3		1-1	2	MX HEAT   4 inch BASE UL	1	20	14 AWG	3	0.085	0.034	39.930	0.007	0.003	37.942
4		1-1	5, 12	MX PHOTO   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	2	20	14 AWG	12	0.082	0.283	39.647	0.019	0.257	37.944
5		1-1	20	MX PULL STATION DOUBLE ACTION	5, 12	20	14 AWG	6	0.070	0.028	39.619	0.024	0.010	38.202
6		1-1	21	MX PULL STATION DOUBLE ACTION	20	20	14 AWG	6	0.064	0.026	39.593	0.030	0.012	38.211
7		1-1	22	DUCT DETECTOR   SMOKE SNSOR   SAMPLE TUBE 6 to 30 INCHES	21	20	14 AWG	0	0.058	0.024	39.570	0.030	0.012	38.223
8		1-1	23	MX RELAY IAM	22	20	14 AWG	0	0.058	0.023	39.546	0.030	0.012	38.236
9		1-1	24	MX DUAL INPUT IAM	23	20	14 AWG	0	0.058	0.023	39.523	0.031	0.012	38.248
10		1-1	25	MX DUAL INPUT IAM	24	20	14 AWG	0	0.058	0.023	39.500	0.031	0.012	38.260
11		1-1	26	ADDR WALL A/V RED   High Volume Fast Flash	25	20	14 AWG	13	0.057	0.273	39.227	0.044	0.268	38.272
12		1-1	27	ADDR WALL A/V RED   High Volume Fast Flash	26	20	14 AWG	13	0.044	0.268	38.959	0.057	0.273	38.540
13		1-1	16	MX PHOTO   4 inch BASE UL	27	20	14 AWG	0	0.031	0.013	38.946	0.057	0.023	38.813
14		1-1	17	MX PHOTO   4 inch BASE UL	16	20	14 AWG	0	0.031	0.013	38.934	0.057	0.023	38.836
15		1-1	6	MX PULL STATION DOUBLE ACTION	17	20	14 AWG	3	0.031	0.012	38.921	0.060	0.024	38.859
16		1-1	30	ADDR WALL A/V RED   High Volume Fast Flash	6	20	14 AWG	13	0.028	0.261	38.660	0.073	0.279	38.883
17		1-1	8	MX PULL STATION DOUBLE ACTION	30	20	14 AWG	3	0.015	0.006	38.654	0.076	0.030	39.163
18		1-1	9	MX DUAL INPUT IAM	8	20	14 AWG	0	0.013	0.005	38.649	0.076	0.031	39.193
19		1-1	3	MX HEAT   4 inch BASE UL	9	20	14 AWG	0	0.012	0.005	38.644	0.076	0.031	39.224
20		1-1	4, 7	MX PHOTO   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	3	20	14 AWG	9	0.012	0.255	38.389	0.085	0.284	39.254
21		1-1	13	MX PULL STATION DOUBLE ACTION	4, 7	20	14 AWG	3	0.003	0.001	38.387	0.088	0.035	39.538
22		1-1	10	MX DUAL INPUT IAM	13	20	14 AWG	0	0.001	0.000	38.387	0.088	0.035	39.574
23		1-1	11	MX RELAY IAM	10	20	14 AWG	0	0.000	0.000	38.387	0.088	0.391	39.609
24		1-1		MX LOOP RETURN	11	220	14 AWG					0.088		40.000

# Project – Bill of Materials

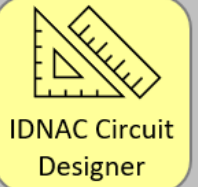
- 1) Click Project View
- 2) Switches to Bill of Materials Sheet
- 3) Click Button to Create a CSV File which can be uploaded to the File Import Product Selector in Selection Navigator









Home Menu




IDNAC Circuit Designer




NAC Circuit Designer



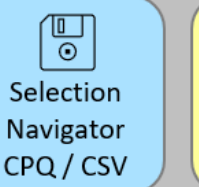
FQQ  
It's Quick



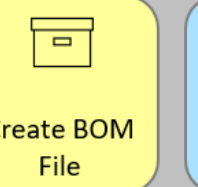
FQP  
Quick Picks



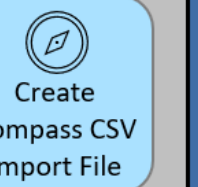
Labor Rates  
and Costs



Selection Navigator  
CPQ / CSV



Create BOM  
File



Create  
Compass CSV  
Import File

User Defined Custom items marked with ★ will not be included in Selection Navigator CSV files

Description	Partcode	Quantity
4 inch Standard Base	4098-5261	5
Duct sensor housing only (order sensor separately)	4098-5214	1
Sampling tube for 6 in. to 30 in. (152 mm to 762 mm) duct width	STS-2.5	1
Relay IAM with DIP Switch	4090-5259	2
Addressable Pullstation Double Action Break Glass with DIP Switch	4099-5215	5
MX Gen6 Photo	4098-5256	5
MX Gen6 Heat	4098-5257	3
MX Sounder Beacon Base High Volume Fast Flash	4098-5220	2
MX Wall Mount Loop Powered Sounder Beacon Red	4906-5214	3



# Project – Designer View

- 1) Click Designer View
- 2) Returns to ESMX Loop Designer Sheet

Designer View Project View Bill of Materials

PROJECT

DETECTORS	PHOTO	5	PHOTO/HEAT	0	HEAT	3	PHOTO/HEAT/CO	0	DUCT	1
BASES	STANDARD	5	CONTINUITY	0	SOUNDER	0	SOUNDER BEACON	2		
CALLS/PULLS	CP INDOOR	0	CP OUTDOOR	0	SINGLE	0	BREAKGLASS	5	PUSH PULL	0
MODULES	SIGNAL IAM	0	ISOLATOR	0	MULTI IO	0	RELAY	2	MONITOR	0
LP SOUNDERS	MINI IAM	0	DUAL IAM	4	WP SDR	0	WP SDR/BEACON	0		
	SOUNDER	0	SDR/BEACON	3						

Device + LED in Alarm  
 LEDs on in Alarm  
 Ohms per kilometer  
 Devices with Isolators  
 Max 4000 per Loop  
 1 DC Unit = 0.25mA  
 Max Capacitance  
 1 AC Unit = 2nF  
 Max 2000 m per Loop

< 80% of maximum allowed  
 80 - 100% of maximum allowed  
 > 100% of maximum allowed

Select across these 4 columns to edit devices														2000		Left Feed		Right Feed		
Item	Loop	Point Label	Description and Setting	Wire Length	Wire Gauge	Address	Device mA	LEDs On	Cable Ω	Isolator Ω	Loop DC Units	Available AC Units	Total Wire	Amps	Volt Drop	Volts at Device	Class A Amps	Class A Volt Drop	Volts at Dev Cls A	
1	1-1		MX LOOP		14 AWG				10.07		353	330	660	0.088		40.000				
2	1-1		MX HEAT   4 inch BASE UL	20	14 AWG	1	3.250	●	10.07					0.088	0.036	39.964	0.003	0.001	37.940	
3	1-1		MX HEAT   4 inch BASE UL	20	14 AWG	2	3.250	●	10.07					0.085	0.034	39.930	0.007	0.003	37.942	
4	1-1		MX PHOTO   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	20	14 AWG	5, 12	12.050	●	10.07	0.25				0.082	0.283	39.647	0.019	0.257	37.944	
5	1-1		MX PULL STATION DOUBLE ACTION	20	14 AWG	20	5.600	●	10.07					0.070	0.028	39.619	0.024	0.010	38.202	
6	1-1		MX PULL STATION DOUBLE ACTION	20	14 AWG	21	5.600	●	10.07					0.064	0.026	39.593	0.030	0.012	38.211	
7	1-1		DUCT DETECTOR   SMOKE SNSOR   SAMPLE TUBE 6 to 30 INCHES	20	14 AWG	22	0.250		10.07					0.058	0.024	39.570	0.030	0.012	38.223	
8	1-1		MX RELAY IAM	20	14 AWG	23	0.300		10.07					0.058	0.023	39.546	0.030	0.012	38.236	
9	1-1		MX DUAL INPUT IAM	20	14 AWG	24	0.250		10.07					0.058	0.023	39.523	0.031	0.012	38.248	
10	1-1		MX DUAL INPUT IAM	20	14 AWG	25	0.250		10.07					0.058	0.023	39.500	0.031	0.012	38.260	
11	1-1		ADDR WALL A/V RED   High Volume Fast Flash	20	14 AWG	26	13.000		10.07	0.25				0.057	0.273	39.227	0.044	0.268	38.272	
12	1-1		ADDR WALL A/V RED   High Volume Fast Flash	20	14 AWG	27	13.000		10.07	0.25				0.044	0.268	38.959	0.057	0.273	38.540	
13	1-1		MX PHOTO   4 inch BASE UL	20	14 AWG	16	0.250		10.07					0.031	0.013	38.946	0.057	0.023	38.813	
14	1-1		MX PHOTO   4 inch BASE UL	20	14 AWG	17	0.250		10.07					0.031	0.013	38.934	0.057	0.023	38.836	
15	1-1		MX PULL STATION DOUBLE ACTION	20	14 AWG	6	2.600		10.07					0.031	0.012	38.921	0.060	0.024	38.859	
16	1-1		ADDR WALL A/V RED   High Volume Fast Flash	20	14 AWG	30	13.000		10.07	0.25				0.028	0.261	38.660	0.073	0.279	38.883	
17	1-1		MX PULL STATION DOUBLE ACTION	20	14 AWG	8	2.600		10.07					0.015	0.006	38.654	0.076	0.030	39.163	
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20	1-1		MX PHOTO   ADDR LP SOUNDER BEACON BASE   High Volume Fast Flash	20	14 AWG	4, 7	9.050		10.07	0.25				0.012	0.255	38.389	0.085	0.284	39.254	
21	1-1		MX PULL STATION DOUBLE ACTION	20	14 AWG	13	2.600		10.07					0.003	0.001	38.387	0.088	0.035	39.538	
22	1-1		MX DUAL INPUT IAM	20	14 AWG	10	0.250		10.07					0.001	0.000	38.387	0.088	0.035	39.574	
23	1-1		MX RELAY IAM	20	14 AWG	11	0.300		10.07					0.000	0.000	38.387	0.088	0.391	39.609	
24	1-1		MX LOOP RETURN	220	14 AWG				10.07								0.088		40.000	



**Thank You**